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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/719,887

11/21/2003

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1431

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02/23/2005

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EXAMINER

KAO, CHIH CHENG G

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

<b>Office Action Summary</b>	<b>Application No.</b> 10/719,887	<b>Applicant(s)</b> YADA ET AL.	
	<b>Examiner</b> Chih-Cheng Glen Kao	<b>Art Unit</b> 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/6/04, 9/7/04</u> | 6) <input checked="" type="checkbox"/> Other: <u>IDS: 10/27/04, 11/15/04</u>           |

## **DETAILED ACTION**

### ***Oath/Declaration***

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:  
It does not identify the citizenship of each inventor.

### ***Information Disclosure Statement***

2. The information disclosure statement filed 08/06/04 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

The copy of Yada, K., et al. ("Projection X-ray Shadow Microscopy Using SEM") is incomplete. Pages 32-33 are missing.

3. The Examiner notes that GB 2131224 has been cited twice in the information disclosure statements filed 10/27/04 and 11/15/04. The Examiner has considered this document in just the information disclosure statement filed 11/15/04.

### ***Drawings***

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: (fig. 1, #21) and (fig. 1, #24). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

5. Claims 1-6 are objected to because of the following informalities, which appear to be minor draft errors including grammatical and lack of antecedent basis problems.

In the following format (location of objection; suggestion for correction), the following corrections may obviate their respective objections: (claim 1, line 4, "ray generation, for inspecting"; replacing the comma with - -and- -), (claim 1, line 5, "utilizing said X-ray"; replacing "X-ray" with - -X-rays- -), (claim 1, line 12, "utilizing the signals"; deleting "the"), (claim 1, line 16, "of said electron image"; replacing "said" with - -the- -), (claim 2, line 3, "on a target, for"; replacing the comma with - -and- -), (claim 3, line 4, "ray generation, for

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inspecting”; replacing the comma with - -and- -), (claim 4, line 3, “on a target, for”; replacing the comma with - -and- -), (claim 5, line 4, “ray generation, for inspecting”; replacing the comma with - -and- -), (claim 5, line 12, “a fluorescent X-ray signals”; deleting “a”), and (claim 6, line 4, “ray generation, for inspecting”; replacing the comma with - -and- -).

For purposes of examination, the claims have been treated as such. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the phrase "may be", as recited in line 15, renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d). The claim has been examined as best understood by the Examiner as follows.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 2 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Wilkins (US Patent Application Publication 2001/0001010).

8. Regarding claim 2, Wilkins discloses an X-ray microscopic inspection apparatus (paragraph 1) having X-ray generating means for generating X-rays (paragraph 1, line 3) by allowing an electron beam from an electron source (paragraph 53) to impinge on a target for X-ray generation (fig. 5, #20) and for inspecting an object to be inspected (fig. 3, #7) by utilizing said X-rays (paragraph 32), the apparatus comprising a magnetic superposition lens having a magnetic field generating portion (fig. 5, #75) disposed in the vicinity of an electron generating portion of an electron gun (fig. 5, #70) for an electron probe, and a scan coil (fig. 5, #72) for freely swinging an electron probe formed via said magnetic superposition lens (fig. 5, #75) on a surface of said target for X-ray generation (fig. 5, #20).

9. Regarding claim 4, Wilkins further discloses electron probe control means for scanning an electron beam (fig. 5, #72), and X-ray CT image generating means for allowing a microstructure of a cross section of interest of said object to be displayed by processing plural sets of images based on data of transmitted X-rays of said object in response to said scanning (paragraph 113).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkins (US Patent Application Publication 2001/0001010) in view of Ong (US Patent 2939954).

For purposes of being concise, Wilkins discloses an apparatus as recited above.

However, Wilkins does not disclose reflected electron detecting means having a detecting portion disposed above a target for X-ray generation, for detecting a reflected electron from said target, and electron image generating means for performing imaging of a target surface utilizing the signals from said reflected electron detecting means.

Ong teaches reflected electron detecting means having a detecting portion (fig. 1, #11) disposed above a target for X-ray generation (fig. 1, #6), for detecting a reflected electron from said target (col. 3, lines 34-36), and electron image generating means for performing imaging (col. 3, lines 65-66) of a target surface utilizing the signals from said reflected electron detecting means.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Wilkins with the reflected electron detecting means and electron image generating means of Ong, since one would be motivated to make such modification to make image definition more accurate (col. 4, lines 31-40) as shown by Ong.

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Note that the functional recitation that the apparatus is arranged so that alignment including focus adjustment to said target for X-ray generation and astigmatism correction may be performed based on image information of said electron image has not been given patentable weight because it is narrative in form.

11. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkins in view of Sawahata et al. (US Patent 6555816).

For purposes of being concise, Wilkins discloses an apparatus as recited above.

However, Wilkins does not disclose an electron beam axis alignment coil disposed in the vicinity of a generating portion of an electron generated from an electron source, for aligning an axis of an electron beam while accelerating the electron.

Sawahata et al. teaches an electron beam axis alignment coil (fig. 1, #22) disposed in the vicinity of the generating portion of an electron generated from said electron source (fig. 2, #2-4), for aligning an axis of an electron beam while accelerating the electron (fig. 2, #2-4).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Wilkins with the electron beam axis alignment coil of Sawahata et al., since one would be motivated to make such modification to deter divergence of electrons (fig. 1, #5) as shown by Sawahata et al., which would lower the intensity of radiation and signals derived from the object.

12. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkins in view of Wang (US Patent 5044001).

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For purposes of being concise, Wilkins discloses an apparatus as recited above.

However, Wilkins does not disclose fluorescent X-ray detecting means having a detecting portion disposed above said object and outside an X-ray target for detecting a fluorescent X-ray generated from said object; and elemental analysis means for analyzing elements of said object based on fluorescent X-ray signals from said fluorescent X-ray detecting means.

Wang teaches fluorescent X-ray detecting means having a detecting portion (fig. 1, #17 and 18, and col. 8, lines 67-68) disposed above said object (fig. 1, #14, and col. 8, lines 61-62) and outside an X-ray target (fig. 1, #12) for detecting a fluorescent X-ray generated from said object; and elemental analysis means for analyzing elements of said object based on fluorescent X-ray signals from said fluorescent X-ray detecting means (col. 7, line 52, to col. 8, line 6).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Wilkins with the fluorescent X-ray detecting means and the elemental analysis means of Wang, since one would be motivated to make such modification to reduce radiation dosage (col. 4, lines 11-14) as shown by Wang, thus reducing cellular harm, and to obtain more information than just an image of the object.

13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkins in view of Hirose et al. (US Patent 5832052).

For purposes of being concise, Wilkins discloses an apparatus as recited above.

However, Wilkins does not disclose a plurality of targets for different characteristic X-ray generation having different wavelengths, wherein the apparatus is arranged so that

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characteristic X-rays of a wavelength of interest may be generated by switching said targets for X-ray generation depending on a purpose of inspection.

Hirose et al. teaches a plurality of targets for different characteristic X-ray generation having different wavelengths, wherein the apparatus is arranged so that characteristic X-rays of a wavelength of interest may be generated by switching said targets for X-ray generation depending on a purpose of inspection (col. 6, lines 1-5).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Wilkins with the targets of Hirose et al., since one would be motivated to make such modification to better meet required wavelengths for observing different kinds of specimens (col. 6, lines 1-5) as implied from Hirose et al.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

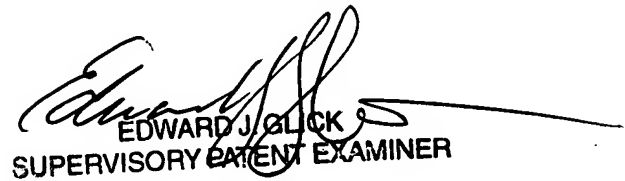
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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